irradiation and mechanical stirring not using a grinding medium, to provide a slurry of alumina dispersed in a solvent;

drying and forming said slurry to produce a green body; and then

sintering said green body in an air atmosphere at a temperature in the range of 1400°C to 1800°C;

wherein said alumina powder has:

a purity of 99.99 wt% or more and comprises α alumina particles having a polyhedral shape, each having substantially no fractured surface, and having a D/H ratio of from 0.5 or more to 3.0 or less, wherein D represents a maximum particle diameter parallel to the hexagonal lattice plane of a hexagonal close packed lattice of α alumina, and H represents a maximum particle diameter perpendicular to the hexagonal lattice plane of a hexagonal close packed lattice of α alumina;

a number-average particle size of from 0.1 μm or more to 1.0 μm or less; and

a D90/D10 ratio of 7 or less, wherein D10 and D90 are the particle sizes at 10% cumulation diameter and 90% cumulation diameter, respectively, from the smallest particle side in a cumulative particle size distribution.

IN THE ABSTRACT:

Please replace the originally filed abstract with the abstract on the page below.